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10/690,375	10/21/2003	Harold E. Childers II	SEVR111STWP	6520

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EXAMINER
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CONLEY, SEAN EVERETT

ART UNIT	PAPER NUMBER
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1744

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/690,375	<b>Applicant(s)</b> CHILDERS ET AL.	
	<b>Examiner</b> Sean E. Conley	<b>Art Unit</b> 1744	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 44-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/21/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of group I, claims 1-43 and species I, claim 8 in the replies filed on 1/8/07 and 5/10/07 is acknowledged. Claims 44-51 are withdrawn from consideration for being directed to a non-elected invention and claim 9 is withdrawn for being directed to a non-elected species.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites "the dissolvable disinfectant comprises calcium chlorite, sodium chlorite, bromine based chemicals and combinations thereof". It is unclear to the Examiner whether or not the dissolvable disinfectant contains only one of the three types of chemicals specified in the claim or just a combination thereof. It appears the Applicant meant to write the claim as a Markush limitation and therefore the claim should be written in proper Markush format, for example: "the dissolvable disinfectant is selected from the group comprising calcium chlorite, sodium chlorite, bromine based chemicals and combinations thereof".

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-8, 10-11, 15-17, 21-24, 28-30, 34-36, 40-41 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Dafny et al. (U.S. Patent Application Publication No. US 2004/0154984 A1).

Regarding claims 1, 22, 30 and 43, Dafny et al. disclose a process for preparing biocide solutions of constant concentrations. The process includes the steps of a) directing feed water into a dosing storage tank (reservoir (1)); (b) circulating the tank water from the dosing storage tank (1) through a disinfectant container (compartment holding biocide (2)) and back into the dosing storage tank (1), the disinfectant container including a disinfectant (2) with a predetermined rate of dissolution; (c) controlling the amount of feed water and flow rate directed into the dosing storage tank (1) using controller (7) and cpu (11) and controlling the flow rate of tank water through the disinfectant container (using holes in the container) to ensure that a circulation rate of the tank water does not exceed the rate of dissolution of the disinfectant (the flow rate

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and water volume are controlled to achieve a desired biocide concentration); and (d) maintaining a substantially consistent concentration of disinfectant throughout the dosing storage tank (1) (see figures 1-2; see paragraphs [0001], [0050]-[0056], [0059]; see examples). Furthermore, Dafny et al. disclose that the biocide solution formed contains no particulate matter (see paragraphs [0025]-[0026]).

Regarding claim 34, Dafny et al. disclose a process for preparing biocide solutions of constant concentrations. The process includes the steps of a) directing feed water into a dosing storage tank (reservoir (1)); (b) circulating the tank water from the dosing storage tank (1) through a disinfectant container (compartment holding biocide (2)) and back into the dosing storage tank (1), the disinfectant container including a disinfectant (2) with a predetermined rate of dissolution; (c) monitoring and controlling the amount of feed water and flow rate directed into the dosing storage tank (1) and controlling the flow rate of tank water through the disinfectant container to ensure that a circulation rate of the tank water does not exceed the rate of dissolution of the disinfectant (see figures 1-2; see paragraphs [0001], [0050]-[0056], [0059]; see examples). Dafny et al. further inherently disclose the steps of comparing the amount of feed water added to the tank with the amount of fluid required to match the disinfecting capabilities of the disinfectant within the container (Dafny et al. disclose monitoring and controlling feed water flow rate, feed water volume, and the flow rate of the water into the biocide chamber to achieve a desired concentration – therefore, all of these variables are compared including the predetermined dissolution rate of the biocide). Dafny et al. specifically disclose that the volume of feed water and flow rate is

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controlled by controlling unit (7) and using the high/low level monitoring means (9) to achieve a desired biocidal dose. The high/low level monitoring means ceases addition of water when a predetermined level is reached (thus, the water the addition water is ceased since this predetermined level matches a dissolution rate of the disinfectant). Furthermore, the biocidal solution is re-circulated a predetermined number of times to achieve the desired concentration. Therefore, the disinfecting capabilities of the biocide (2) are compared with the flow rate and volume of the feed water (see paragraphs [0047], [0052]-[0056]).

Regarding claims 2, 11, 24 and 36, Dafny et al. disclose the step of monitoring and controlling the volume of the feed water in the dosing storage tank (1) using a high/low level switching means (see paragraph [0055]). Dafny et al. also teach that the water is continuously added to the tank (1) and is therefore monitored using the high/low level switching means (see paragraph [0059]) (a high set point or a low set point is used depending upon the desired dosage). Therefore, the automatic operation of the control unit (7) will add water or cease operation of water depending upon the desired concentration of biocide required. Dafny et al. further teaches that a control unit (7) and controls the volume and flow rate of feed water entering the tank (1) (see paragraph [0053]).

Regarding claim 3, Dafny et al. disclose the use of a disinfectant vessel (compartment holding biocide (2)) containing the dissolvable disinfectant (see figure 1; see paragraph [0050]).

Regarding claims 4-6, 10 and 28, Dafny et al. discloses that the water is added to the storage tank (1) through a controlling unit (7) that regulates the flow. This flow rate matches a predetermined dissolve rate for the dissolvable disinfectant (biocide (2)). The disinfectant container has holes that determine the actual amount of water that will contact the solid material (biocide (2)). The size and location of holes is determined based on a desired concentration and a desired flow rate of water as well as the dissolve rate of the disinfectant. Therefore, the flow rate of the water in of the disinfectant container is matched with a predetermined dissolve rate of the dissolvable disinfectants. The biocide solution that is formed is re-circulated using pump (6) until saturation or any other concentration is achieved (see figures 1-2; see paragraph [0052]-[0056]).

Regarding claim 7 and 40, Dafny et al. disclose that the system dissolve solid biocides, for example tablets (see paragraph [0040]).

Regarding claim 8, Dafny et al. disclose that the dissolvable disinfectant (biocide (2)) is 2,2-dibromo-3-nitropropionamide (DBNPA) which is a bromine based chemical (see examples 1-2).

Regarding claims 15, 29 and 41, Dafny et al. disclose that the biocide solution is re-circulated until saturation (thus all of the disinfectant is dissolved) thereby preventing settling out of particulate within the fluid (see paragraph [0053]).

Regarding claim 16, Dafny et al. disclose the steps of monitoring the amount and flow rate of the feed water added to the dosage storage tank (1) and comparing the amount of feed water added to the tank with the amount of fluid required to match the

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disinfecting capabilities of the disinfectant within the container. Dafny et al. specifically disclose that the volume of feed water and flow rate is controlled by controlling unit (7) and using the high/low level monitoring means (9) to achieve a desired biocidal dose. The high/low level monitoring means ceases addition of water when a predetermined level is reached. Furthermore, the biocidal solution is re-circulated a predetermined number of times to achieve the desired concentration. Therefore, the disinfecting capabilities of the biocide (2) are compared with the flow rate and volume of the feed water (see paragraphs [0047], [0052]-[0056]).

Regarding claims 21, 23 and 35, Dafny et al. disclose the step of discharging the biocide solution from the tank (1) via pump (8) to the point of use when the solution has a required constant concentration (see paragraph [0054]).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.



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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 18, 33 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dafny et al. as applied to claim 1 and 22 above, and further in view of Scoville (U.S. Patent No. 4,29,215).

Dafny et al. is silent with regards to the specific type of water that is being used to form the disinfecting solution, therefore, it would have been necessary and thus obvious to look to the prior art for conventional types of water used in a process for making a disinfectant or sanitizing solution. Scoville provides this conventional teaching showing that it is known in the art to use softened water in a process for the production of a sodium hypochlorite sanitizing solution (see col. 2, lines 12-27). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use softened water as the water source in the process of making a disinfectant

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solution motivated by the expectation of successfully practicing the invention of Dafny et al.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dafny et al. as applied to claim 16 above, and further in view of Zetena et al. (U.S. Patent No. 4,867,196).

Dafny et al. fails to specifically teach the step of replacing the biocide tablets after they are completely dissolved.

Zetena et al. disclose a pool chemical dispenser that includes chemical tablets that are dissolved to form a disinfectant solution (see col. 1, lines 5-11, col. 3, lines 15-32). Zetena et al. further disclose that after the tablets have been dissolved they container holding the tablets is easily refilled with new chemical tablets for future use (see col. 3, lines 27-32; see col. 4, lines 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Dafny et al. and include the step of refilling the biocide container after all of the biocide tablets have dissolved in order to continue to create a disinfectant solution motivated by the teaching of Zetena et al. whom disclose that the chemical tablet container is refilled with new chemical tablets in order to continue the periodic dissolution cycle.

9. Claims 19, 20, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dafny et al. as applied to claim 1 and 22 above, and further in view of Ferguson et al. (U.S. Patent No. 5,384,102).

Dafny et al. discloses the claimed process except for using hypochlorite tablets to form a disinfected solution having about 0.2% to about 10.0% by weight of hypochlorite and preferably about 0.9% by weight of hypochlorite solution in the storage tank.

Ferguson et al. disclose a tablet chemical dispenser for forming a disinfecting solution that utilizes calcium hypochlorite tablets. The tablets are dissolved in the water to form a disinfectant solution (see col. 1, lines 5-30; see col. 7, lines 42-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the dissolvable disinfectant tablet (2,2-dibromo-3-nitrilopropionamide (DBNPA)) of Dafny et al. with the functionally equivalent calcium hypochlorite tablets of Ferguson et al. since a substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958). When a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result (*KSR v. Teleflex*). Additionally, it would have been obvious to optimize the parameters of the modified process of Dafny et al. to achieve a disinfectant solution in the dosing storage tank having about 0.9% by weight of hypochlorite solution since it has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.

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10. Claims 12-14, 25-27 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dafny et al. as applied to claims 10, 11, 22, 24 and 36 above.

Dafny et al. fails to specifically disclose the steps of adding feed water to the storage tank or removing feed water when the water exceeds a high level set point or a low level set point. However, Dafny et al. disclose the step of monitoring and controlling the volume of the feed water in the dosing storage tank (1) using a high/low level switching means (see paragraph [0055]). Dafny et al. also teach that the water may be continuously added to the tank (1) and controlled and regulated to ensure a constant biocide solution (see paragraph [0059]) (a high set point or a low set point is used depending upon the desired dosage).

Therefore, it is obvious to one of ordinary skill in the art that the process includes the step of either automatically adding make-up water or removing water from the storage tank using the control system and the high/low level volume switching means to accurately control the amount of water in the tank to ensure that the desired constant concentration is achieved.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Conley whose telephone number is 571-272-8414. The examiner can normally be reached on M-F 8:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sec

*see*

August 5, 2007

*Elizabeth L. McKane*  
**ELIZABETH MCKANE**  
**PRIMARY EXAMINER**